Views on Sexual Assault among IFC Fraternities

A Senior Project

presented to

the Faculty of the Statistics Department

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In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in

Statistics

by

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Background

The client for this project is Cierra Ensign, a fourth year sociology major here at Cal Poly, working on her senior project. She works in the Safer office at Cal Poly as an intern. Safer is an organization whose goal is to educate the Cal Poly community about all aspects of sexual assault awareness and risk-reduction, as well as relationship violence. Additionally Safer gives talks to the fraternities at Cal Poly, the target audience of Cierra's survey. She originally went into the consulting service and talked to Professor Smith, but it was decided that she needed more in depth help than just the consulting service. Professor Smith offered the project to the Stat421 class, which I was in, and there was a meeting set up with Cierra and Professor Smith to talk about what the project would consist of and the goals of the project. The project consisted of surveying all fraternities at Cal Poly that were part of the Interfraternity Council (IFC), 16 fraternities in total. Cierra based her project off of a similar project that was performed on fraternities on the East Coast and she needed help with analyzing the data she planned to collect. Her research came from the following articles: "Risk Factors for Male Sexual Aggression on College Campuses," "The Longitudinal Effects of a Rape-prevention Program on Fraternity Men's Attitudes, Behavioral Intent, and Behavior," and "On Hostile Ground." In the initial meeting the main goal for Cierra was to get an accurate analysis and determine a significant sample size for the survey she had prepared for the IFC fraternities. From the statistical side of the project, some demographic variables were added to the survey in order to gain more insight from the data. Demographic variables included age/year in school, number of siblings, whether the respondent held an office position, and where the respondent currently lived. Data collection was originally proposed by Cierra to be done on a Google Document and have each fraternity President email the link to their members, but response rates would have likely been low and it would not have been possible to know how many surveys were sent out. A meeting with Diego, Greek Life Coordinator at Cal Poly, was set up to discuss a data collection plan to gain the optimal response from the fraternities as Diego has performed many surveys with fraternities and sororities in the past.

Preparation

Meetings:

In preparation for the survey Cierra and I attended multiple meetings to get the okay on the project. In the meeting with Diego, he proposed that we attend an IFC Board meeting to get their input on the best way to collect the data and if the fraternities would even take part in the survey. The next meeting we attended was the IFC Board meeting, which took place Monday October 15th at 7:30 pm. At this meeting we proposed the idea to the board (approximately 9 members) of the survey and what the goals were for the project. The IFC Board said that an in-person survey would yield the best response rate and agreed to take the survey. In addition, they invited us back to the meeting with all the fraternity Presidents in order to get their opinion on the project. The meeting with the Presidents took place after the IFC Board meeting and in this meeting a majority said that the best response would be from attending their individual chapter meetings and passing out an in person survey, as if it was email response a majority of the members would ignore it. After the meetings it was decided that it would be an in-person survey and there would be two versions of the survey. The initial data collection plan included a split plot design using both versions in each participating fraternity, but this was discarded due to complications seen by the client. Instead it was decided that each fraternity would receive one version.

The Survey:

The survey was made up of questions from previous surveys on the topic, one question measuring the likelihood of committing sexual assault with the assurance of not being caught and four demographic variables. It was specifically composed of 30 True/False questions, one likert scale question, and the four demographic questions. The two different versions determined the order of the questions in the survey. Version One, known as the mixed version, had all the questions from the previous surveys in random order with the demographic variables at the end. Version Two, known as the divided version, had the questions divided by which previous survey they came from. We had the idea to use two versions because we wanted to see if there was a difference in the responses based on how the questions were ordered. We had no expectations of the version effect; we just wanted to see if there was a difference based on the ordering of questions. Coding specifications along with each version of the survey are in the appendix.

Randomization of Version:

R software was used to randomize the ID's of each fraternity based on their size category to either the mixed version (1) or the divided version (2). The fraternities were split into different categories based on their size to attempt to get as equal numbers as possible for each of the versions. The results of the randomization were as follows and the tables include the fraternity ID, total members in that fraternity (initially estimated at the beginning of Fall quarter, some fraternities got larger by the time they were surveyed so the respondents were larger than the initial members), the number of respondents from each of the fraternities, and the percentage of respondents:

Mixed Version (1):

Fraternity ID	Total Members	Number of Respondents	Percentage
1*	104	-	-
2	101	42	41.6 %
6	69	34	49.3 %
7	61	22	36.1 %
8	48	55	100 %
10	43	36	83.7 %
13	36	25	69.4 %
14	24	33	100 %
TOTAL:	486	247	50.1 %

Table 1: IDs, Total Members, Number of Respondents and Percent that responded of each fraternity that received the mixed version

Divided Version (2):

Fraternity ID	Total Members	Number of Respondents	Percentage
3	96	61	63.5 %
4	93	63	67.7 %
5*	75	-	-
9	44	42	95.5 %
11	42	29	69.0 %
12	38	29	76.3 %
15	20	17	85.0 %
16**	6	-	-
TOTAL:	414	241	58.2 %

Table 2: IDs, Total Members, Number of Respondents and Percent that responded of each fraternity that received the divided version

* ID 1 and 5 did not participate, not included in the final data set
** ID 16 dropped out, did not hold enough members to remain a fraternity

Data Collection and Management

Collection:

To collect the data Cierra, me, or both of us would attend a fraternity meeting, once Cierra had set up a time by emailing the President, and passed out the survey to anyone who wished to take it. The person who went to the meeting was a variable of interest (surveyor) because we wanted to see if there was a difference in the responses based on who attended the meeting. In the final data set Cierra attended seven meetings, I attended four, and together we attended two. As seen in Tables 1 and 2 the cooperation was high for most of the fraternities. The tables do not represent the cooperation rate due to the totals no being completely accurate and for not all members of the fraternities were at the meetings, but nearly 100 percent of the members available to take the survey at the meetings participated. The variable for who attended the meeting was not randomized due to conflict of schedules or multiple meetings at the same time; it was more of a convenience variable as whoever could attend a certain meeting. Data collection started in Fall 2012, November 18th, and went into Winter 2013, February 10th. A cutoff date was set in order to have enough time to look at the data for analysis and so the collection process did not continue throughout the whole project. In total 13 fraternities had us attend their meeting leaving just two that did not participate, not including the fraternity that dropped. At each meeting the surveyor would follow the following script:

> "Hello Everyone,
>
> My name is (insert name) and I am a Senior (insert major) student. I am working (Cierra/Steven) on my senior project which is to survey fraternities and sororities to measure men and women's attitudes towards the opposite sex. I am surveying fraternities and sororities because Greek Life is one of the largest groups of men and women on campus. Through this survey we hope to find out how perceptions of men and women vary when looking at the opposite sex.
>
> The responses to this survey will remain anonymous and data will only be used for our senior project.
>
> Responses are optional but it would be greatly appreciated if you answer each question so we can adequately analyze the attitudes towards the opposite sex.
>
> Thank you for taking part in this survey."

Management:

The surveys being on paper meant that they would need to be hand coded into Excel files prepared for each fraternity. Coding specifications for each question are available in the Appendix. Coding each fraternity by hand took up a majority of the data management process and for the most part the person who attended a specific meeting coded that data into an Excel file. Each fraternity had its own individual Excel file with an ID variable to distinguish which fraternity the data represented, with each fraternity having its identity confidential. The Excel files were converted into CSV format for the Macro written to read each individual file into a SAS data set. Once all the individual data sets were created they were all set into one large data set which included all 13 of the fraternities. A total sample size of 488 was achieved; the population of members in IFC fraternities was estimated to be between 900 and 100 roughly, so we achieved a sample of approximately 50 % of the population of interest. Also there were 247 respondents from seven fraternities that received Version One of the questionnaire and 241 from six fraternities that received Version Two of the questionnaire.

Measuring the Indices:

On the survey there were sets of questions that came from different previous surveys performed. Depending on the wording of a question it was determined whether a true or false answer would contribute to the respondent's score for that index (each question was equally weighted and added 1 point to the specific index variable) out of a possible 10. Looking at the ***divided*** version of the survey, questions 1 through 10 were from an "Empathetic Tendency" scale, 11 through 20 were from a "Hostility towards Women" scale, and 21 through 30 came from a "Burt-Rape Myth Acceptance" scale. The first set measured a responder's empathy toward women, the higher the score in this index the more empathy that respondent feels. The second set measured their hostility towards women; a higher score in this index shows a more hostile behavior towards women. The last set measured the respondent's sexual aggression, the higher the score the more aggressive that responder is. Question 31 is its own index measuring the likelihood that the respondent would commit rape with the assurance of not getting caught.

Empathy:

Question 1: "I often find public displays of affection annoying"

False added 1 point to the index

Question 2: "I get very angry when I see someone being ill-treated"

True added 1 point to the index

Question 3: "Lonely people are probably unfriendly"

False added 1 point to the index

Question 4: "I cannot continue to feel okay if people around me are depressed"

True added 1 point to the index

Question 5: "It is hard for me to see how some things upset people so much"

False added 1 point to the index

Question 6: "I am unable to make decisions without being influenced by people's feelings"

True added 1 point to the index

Question 7: "When a friend starts to talk about his/her problems, I try to steer the conversation to something else"

False added 1 point to the index

Question 8: "I like to watch people open presents"

True added 1 point to the index

Question 9: "The people around me have a great influence on my moods"

True added 1 point to the index

Question 10: "Sometimes the words of a love song can move me deeply"

True added 1 point to the index

Hostility:

Question 11: “I do very few things to women that make me feel remorseful afterward”

False added 1 point to the index

Question 12: “It doesn’t affect me when women tease me about my faults”

False added 1 point to the index

Question 13: “There are a number of women who seem to dislike me very much”

True added 1 point to the index

Question 14: “I often feel that women probably think I have not lived the right kind of life”

True added 1 point to the index

Question 15: “When I look back at what’s happened to me, I don’t feel at all resentful toward the women in my life ”

False added 1 point to the index

Question 16: “I never have the feeling that women laugh about me”

False added 1 point to the index

Question 17: “Many times a woman appears to care but just wants to use you”

True added 1 point to the index

Question 18: “I do not think that most women would lie to get ahead”

False added 1 point to the index

Question 19: “If I let women see the way I feel, they would probably consider me a hard person to get along with”

True added 1 point to the index

Question 20: “I don’t typically get really angry when a woman makes fun of me”

False added 1 point to the index

Aggression:

Any question (21 to 30) with a True answer this category added 1 point to the index.

Question 21: “A woman who goes to the home or apartment of a man on their first date implies that she is willing to have sex”

Questions 22: “A woman who is stuck-up and thinks she is too good to talk to guys on the street deserves to be taught a lesson”

Question 23: “One reason that women falsely report a rape is that they frequently have a need to call attention to themselves”

Question 24: “In the majority of rapes, the victim is promiscuous or has a bad reputation”

Question 25: “If a woman gets drunk at a party and has intercourse with a man she's just met there, she should be considered "fair game" to other males at the party who want to have sex with her too, whether she wants to or not”

Question 26: “Regardless of appearance or behavior, any female can be raped”

Question 27: “If a girl engages in necking or petting and she lets things get out of hand, she is responsible if her partner forces sex on her”

Question 28: “Any healthy woman can successfully resist a rapist if she really wants to”

Question 29: “When women go around braless or wearing short skirts and tight tops, they are just asking for trouble”

Question 30: “Women who get raped while hitchhiking get what they deserve”

Scatter Plots of the Indices:

The scatter plots below compare each of the three indices (Empathy, Hostility, Aggression) with one another. They represent the discrete nature of the scores and how the scores relate to each other. For Figure 1, I expected that the indices would be inversely related, so higher Empathy Scores would have lower Hostility Scores and vice versa. Looking at Figure 1 most of the scores were in the lower right with Empathy in the range of 5 to 9 and Hostility in the range of 1 to 5. For Figure 2, I expected similar results to Figure 1, higher Empathy Scores would have lower Aggression Scores and vice versa. Looking at Figure 1 most of the scores were in the lower right with Empathy in the range of 5 to 9 and Hostility in the range of 1 to 4. Figure 3, I expected that high Aggression Scores would be related to high Hostility Scores. Looking at Figure 3, there were very few higher scores for these indices and most of the scores were in the lower right hand corner, low Aggression and low Hostility.

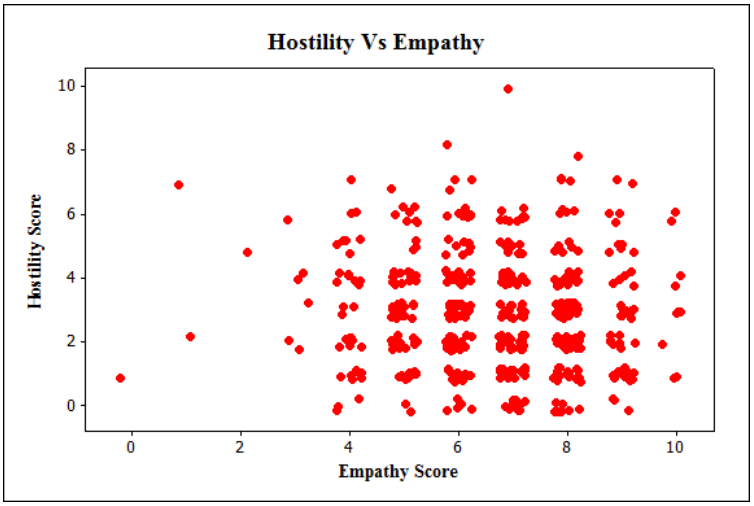


Figure 1: Scatterplot of the Hostility vs Empathy Scores

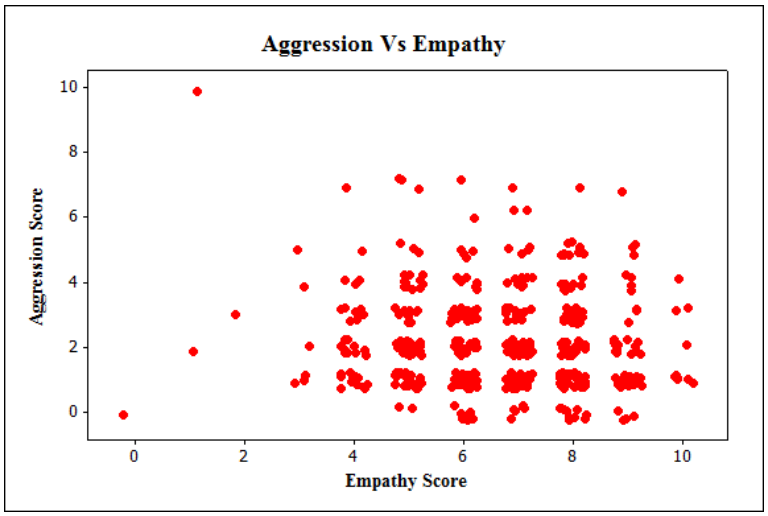


Figure 2: Scatterplot of the Aggression vs Empathy Scores

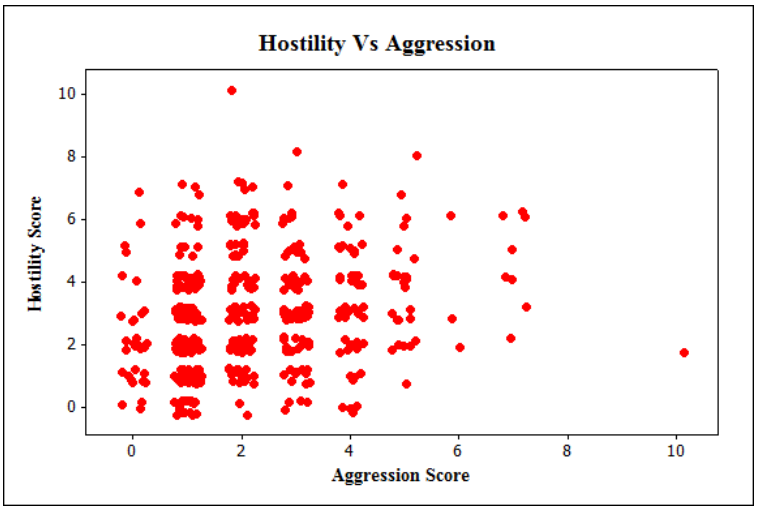


Figure 3: Scatterplot of the Hostility vs Aggression Scores

Likelihood of Committing Rape:

Question 31: “If you could be assured of not being caught, how likely are you to commit rape?” is measured on a likert scale from 1 to 5. 1 means not likely/no chance and 5 means a high chance of committing rape with the assurance of not getting caught. Based off of the scores in previous studies that used this question I had expected more responses to be above 3 and even have some 5 responses as the other studies experienced. This was not the case with this data, seen in Figure 4, and due to the large number of 1 answers and low quantity of 2 through 5 this was analyzed using a dichotomous scale, ‘1’ (Coded as 0) versus ‘Not 1’ (Figure 5) with 437 ‘1’ responses and only 28 ‘Not 1’ responses.

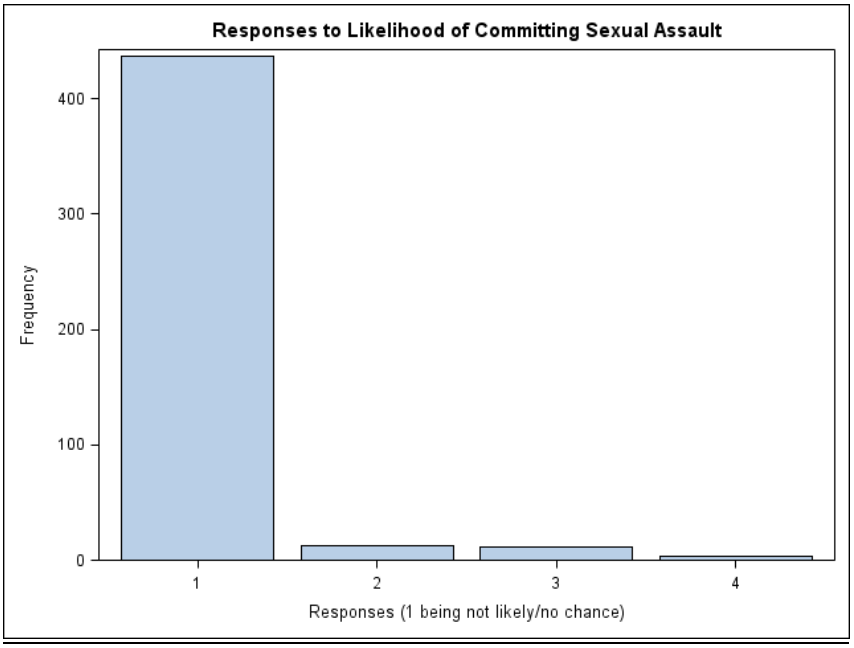


Figure 4: Bar chart of the original responses

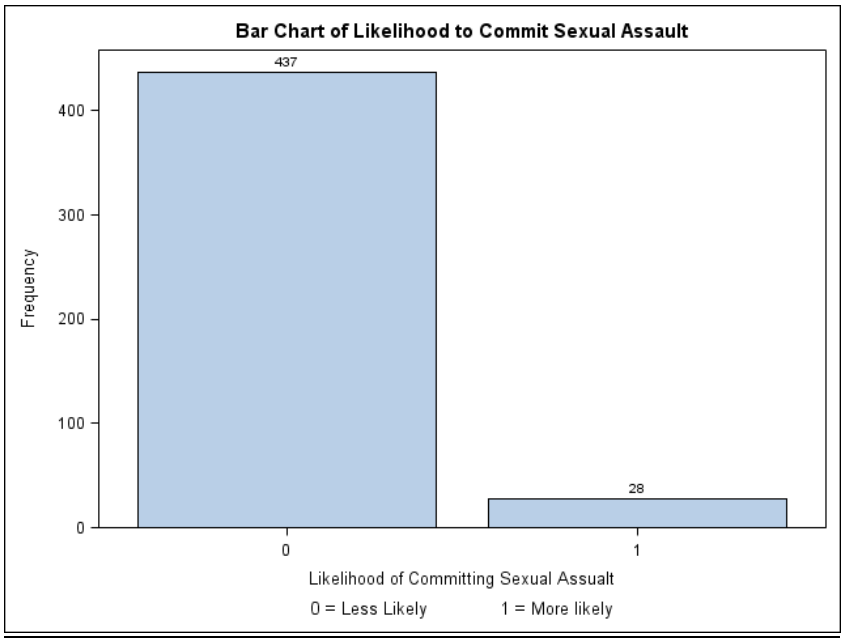


Figure 5: Bar chart of the dichotomous values

Analysis and Results

Analysis Procedures:

SAS statistical software was used to perform the analysis on the data. The original analysis for the 3 indices measured (Empathy, Hostility, and Aggression) was planned to be done in PROC ANOVA, but upon running an ANOVA the following warning appeared in the SAS log:

```
WARNING: PROC ANOVA has determined that the number of observations in each cell is not
equal. PROC GLM may be more appropriate.
```

From that warning the analysis was changed from PROC ANOVA to PROC GLM. Each of the index variables were separately modeled on the following independent variables:

Variables	Definition
Surveyor	Who went to the meeting
Version	Version of the survey
Surveyor*Version	Interaction
ID(Surveyor Version)	ID nested within the surveyor version interaction
Sisters	Whether the respondent had sisters or not
Live	Whether the respondent lived in the fraternity house or not
Age	Sophomore, Junior, Senior/Grad (originally had freshmen but there was only 5 in the data set)

Table 3: Independent variables used in the index models

When PROC GLM was first run with the ID variable only nested within the Surveyor variable which caused the estimates and degrees of freedom for the Version variable to be zeroed out. This led me to investigate further what the ID variable should be nested within. After I looked over the design of the project it was determined that ID was nested within the Surveyor Version interaction, which led to the correct output for the effects used in the model.

For the question “If you could be assured of not being caught, how likely are you to commit rape?” I used the dichotomous responses, 1 versus not 1 and analyzed the data in PROC LOGISTIC. I tried around 15 different nested models and almost all of them resulted in some of the factors being zeroed out, but the final model used only two factors: surveyor and ID nested within surveyor. ID was nested only within the surveyor effect because when the surveyor and version interaction was in the model there would be multiple factors with no value. This model also had the lowest AIC statistic, AIC = 200.211.

Results:

Empathy Model:

Here is a bar chart of the scores for the Empathy Index:

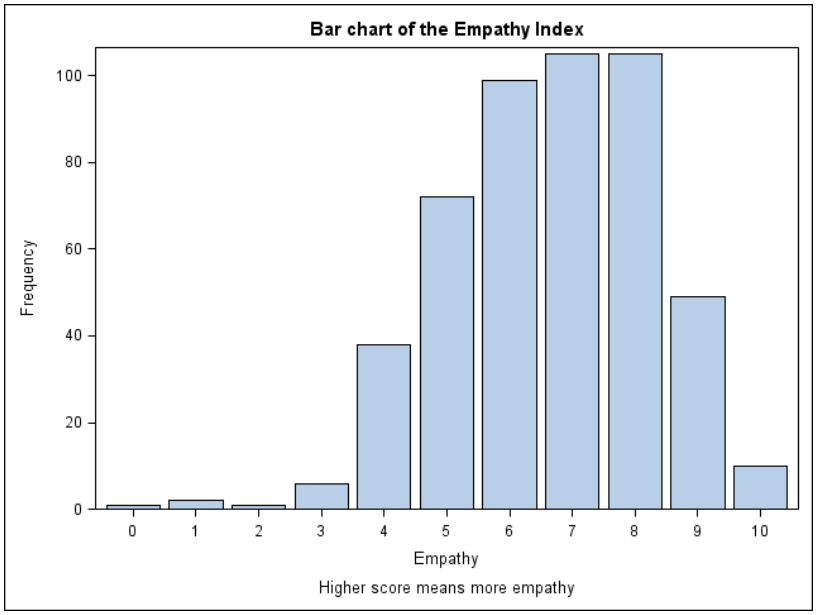


Figure 6: Bar chart of the Empathy scores

The model for the Empathy Index resulted in the variable sisters to be statistically significant (p-value = 0.0278). The interval plot below (Figure 7) shows the difference in mean empathy score between those who said they have sisters and those who said they do not.

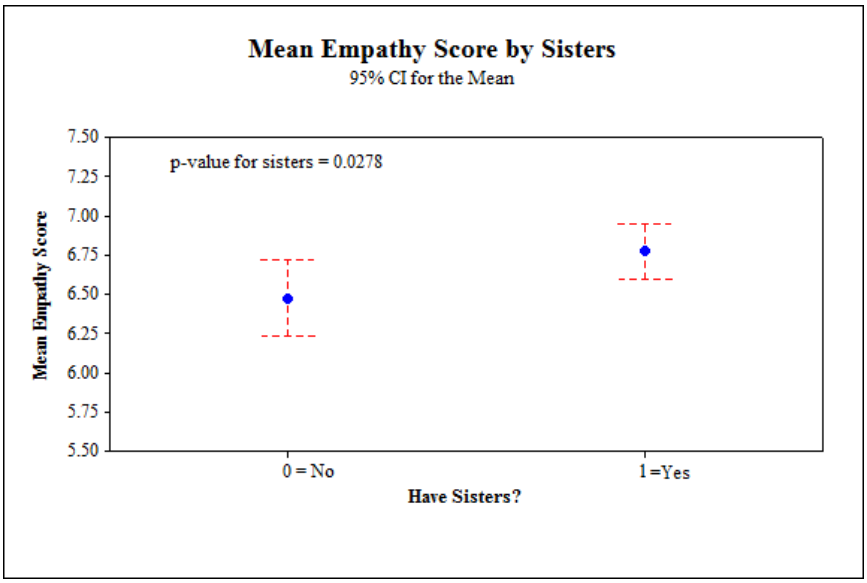


Figure 7: Interval Plot for Sisters

Hostility Model:

Here is a bar chart of the scores for the Hostility Index:

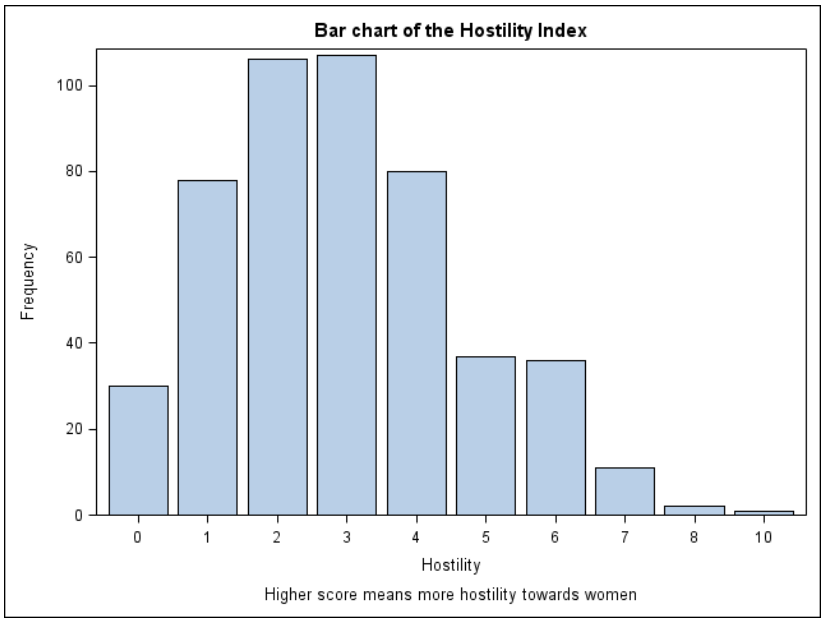


Figure 8: Bar chart of the Hostility scores

The Hostility Model did not have any variables that were found to be statistically significant.

Aggression Model:

Here is the bar chart of the scores for the Aggression Index:

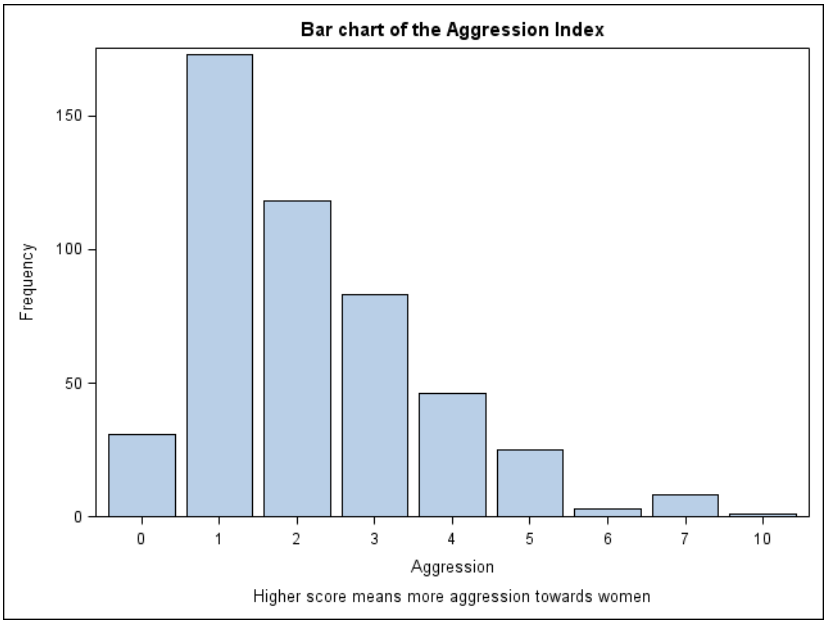


Figure 9: Bar chart of the Aggression scores

The Aggression Model resulted in the ID(Survery*Version) variable be statistically significant (p-value = 0.001). The interval plot below (Figure 10) shows the difference in mean aggression score by the different fraternity IDs in the data set.

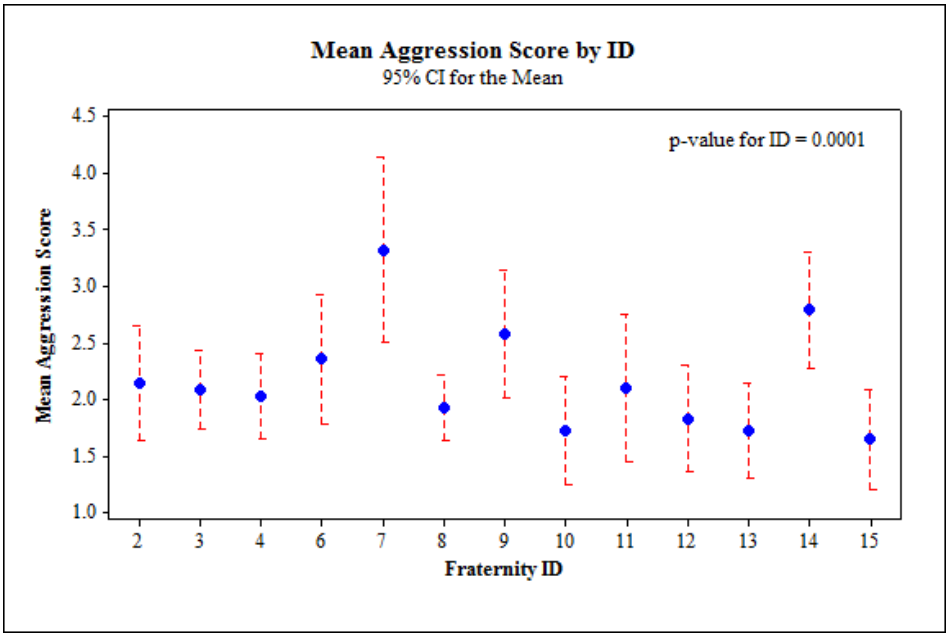


Figure 10: Interval Plot for ID

Likelihood of Committing Rape:

In the logistic regression model for predicting the likelihood of a respondent answering greater than one on the likert scale the only significant predictor was ID(Surveyor 2) p-value = 0.01. The following bar charts represent the likert scale answers for the four IDs that had Surveyor 2, where Surveyor 2 represented when I (Steven) went to that specific meeting. The bar charts show the number of '1' (Coded as 0) responses and 'Not 1' responses for each of the fraternities that I attended.

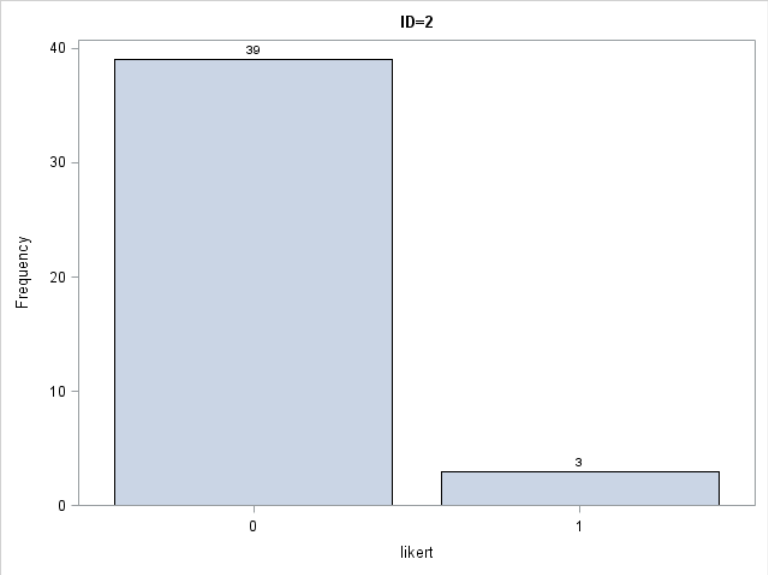


Figure 11: Bar chart for ID 2

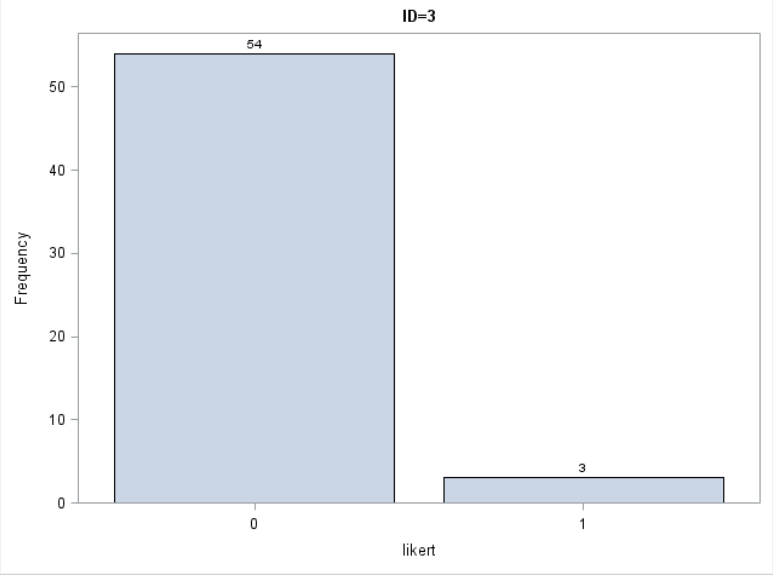


Figure 12: Bar chart for ID 3

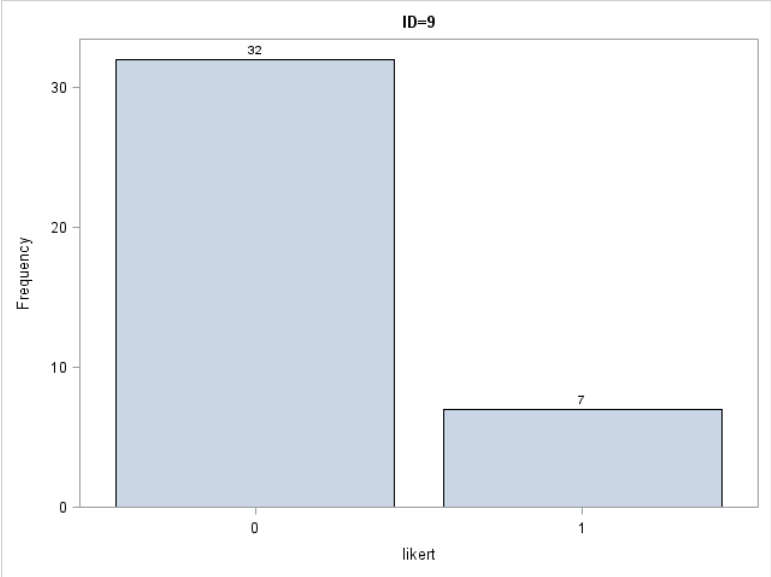


Figure 13: Bar chart for ID 9

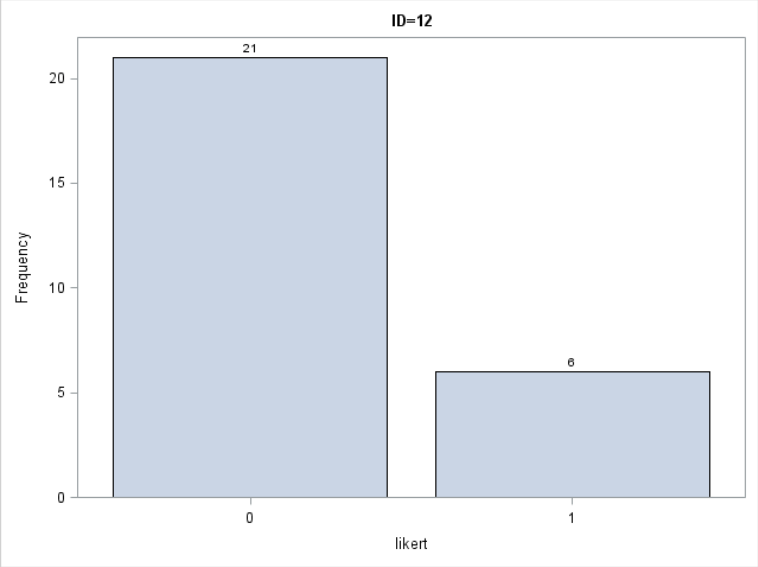


Figure 14: Bar chart for ID 12

Discussion

Findings:

As previously reported, for the Empathy Model the sister variable was statistically significant. Interpretation of the sister variable would be: Those who responded by saying 'Yes' to having sisters had a significantly higher mean score on the Empathy Scale than those who responded 'No' to having sisters. While the sister variable was statistically significant the overall model was not, which led me to look into any autocorrelation or other issues in the model. The output below is a correlation matrix of all the variables in the empathy model:

	ID	Surveyor	Version	Sisters	Live	Age
ID	1.00000	-0.08784	-0.12764	-0.09734	-0.02487	0.01489
		0.0525	0.0047	0.0339	0.5879	0.7458
Surveyor		1.00000	0.11621	0.10983	-0.17410	0.15975
			0.0102	0.0166	0.0001	0.0005
Version			1.00000	-0.02546	-0.07870	-0.03712
				0.5800	0.0860	0.4191
Sisters				1.00000	-0.01595	0.02233
					0.7288	0.6277
Live					1.00000	-0.00317
						0.9450
Age						1.00000

In the correlation matrix above there are two numbers associated with the relationship of the variables. The top number represents the correlation between two variables and the bottom number is a Pearson P-Value for whether or not the correlation significantly differed from 0, the null hypothesis is that correlation between two variables is 0. After looking at the variable 'sisters' in the matrix and its correlation with the other variables in the two largest correlation coefficients were 0.10983 with the surveyor variable and -0.09734 with the ID variable. Then to look further into the sister variable I ran a model with just the sister variable as the independent variable and the sister variable had a p-value of 0.0514, nearly significant at the alpha = 0.05 level.

For the Aggression Model I looked into the ID(Surveyor*Version) variable as it was the only significant predictor. Interpreting this variable shows that IDs that had the same Surveyor and Version interaction had significantly different mean scores in the Aggression Index. I ran a Tukey comparison to look at where the difference was in the Aggression Score and I found that it occurred within those who had Surveyor = 1 and Version = 1. I found that within that interaction ID 7 (red arrow in Figure 15) had a statistically higher mean aggression score than both IDs 13 and 10 (the green arrows in Figure 15), which can be seen on the plot of the ID(Surveyor*Version).

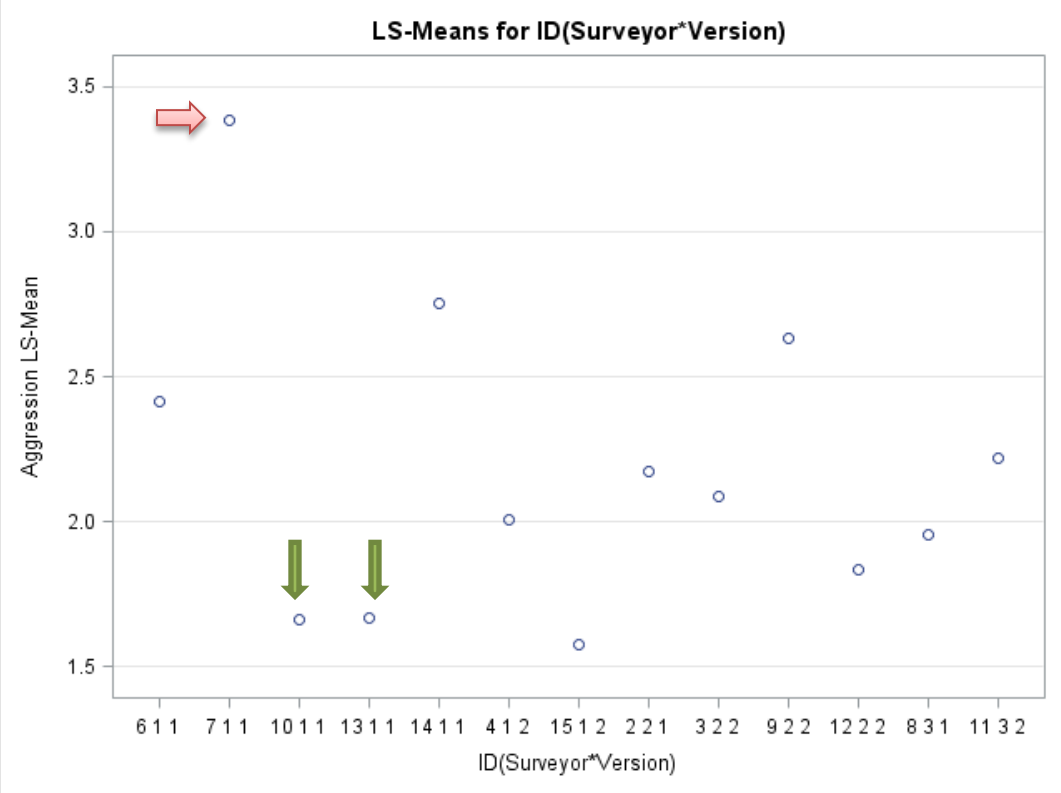


Figure 15: Means of the aggression score for the IDs in order of surveyor and version interaction

The logistic regression resulted in the ID(Surveyor 2) variable being statistically significant. This meant that the IDs that had Surveyor 2 (Steven) attend the meetings had different probabilities for answering higher than one on the likert scale between one another. This implied that at least one of the fraternities was more likely to answer higher on the likert scale than the others and the effect was not due to the surveyor that attended the meeting, as surveyor was not a significant predictor variable in the model. Table shows the counts of answering higher than one for those IDs within Surveyor 2 (Steven).

ID	2	3	9	12
Count	3	3	7	6

Table 3: Counts of those that answered higher than 1 by the ID

Statistical Concerns:

Design:

- For the design and data collection methods there were a few concerns there too. Originally we had planned to run a split plot design where every ID would receive approximately half of each version. This was so we would have been able to distinguish whether any difference in responses was due to the Version or the ID itself. However this did not seem feasible to run due to complications seen by the client, which we ultimately just ended up giving one version to each ID randomly.
- There may be response bias in the data since the survey was on a sensitive topic. Many of the presidents of the fraternities questioned what the data would be used for and they needed to make sure that their fraternity's answers would remain confidential.
- On the surveys we received a good amount of comments that said the questions were stupid, loaded, or just did not make sense for a True or False response. Some of the questions on the survey could have been worded a little bit better to account for this, but since we were following previous research and studies we had to use the exact questions from the previous surveys.

Analysis:

- Looking at the analysis overall there were some statistical concerns that arose both with the design and the models. First the Empathy Model, with the overall not being statistically significant but the sister variable was significant there may be something going on within the variables that I did not catch and should still try and look into.
- Next the logistic model, every single model I ran that contained nested effects questioned the fit of the model and gave a warning that the maximum likelihood estimate may not exist.

Conclusion

By working on this project I utilized a variety of statistical and communication skills learned in classes taken. The classes I referenced the most for the project were STAT 465, 421, and 330. Throughout the project I had to focus on the client's goals and what she wanted to get from the data. I had to be clear and what she wanted and the project improved my communication skills whether written and especially orally. Communication with the client was the key to what the analysis would be with the data, and this project was a more in depth and lengthier 465 project in which I utilized statistical consulting techniques. From STAT 421 some techniques I employed were that of designing the data collection for an optimal response rate, cooperation rate, how to conduct pretesting of the questionnaire, and protocol that should be followed when going to the fraternities to ask for their participation. STAT 330 prepared me for nearly everything I encountered for the analysis and data management since SAS was the software I used throughout the project and while working on the project I learned many more skills in SAS for both data management and analysis beyond that taught in 330 by researching new techniques that I needed specifically for this project. Collecting the data from the fraternities and attending meetings let me utilize my communication skills by explaining exactly what the project was and what the goals were to the respondents of the survey in a clear concise manner. Overall I feel that the classes I took prepared me extremely well to work on this project as my senior project.

As an extension on this project it was proposed by the client at the beginning of the project that a similar study could be performed among the sororities here at Cal Poly and see how they view similar sexual assault issues. There could also be other groups of males at Cal Poly that could be focused on using the same survey used in this project. Then we could see whether the IFC fraternities surveyed have any different views on sexual assault than other groups at Cal Poly by comparing the results of the surveys. Also the data collected here at Cal Poly could be compared to that collected in the original studies among the East Coast Fraternities, if that data were to be readily available to compare.

Appendix

Coding Specifications

The purpose of this document is to describe, in detail, how to code the hard-copy Fraternity surveys on Sexual Assault. For each question on the survey one variable has been created. For each created variable the following items are described in the following specifications. The first section is for the 'mixed' version, while the second is the 'divided' version. Both versions contain the exact same questions but differ in the order.

1. **The name of the variable.** This will be the name used to title the variable in the EXCEL spreadsheet.

2. **The type of variable.** This is specified as: quantitative or categorical. It is included to help us with the future analysis of this data.

3. **Values for the variable**:

   - For a quantitative variable, the variable's plausible values are specified.

   - For a categorical variable, the variable's plausible values are specified.

4. **Description:** Comments are sometimes included. The purpose of these comments is to assist the coders in their effort to code the variable consistently.

These variables will be created in an EXCEL file titled: FraternitySP_Mixed or FraternitySP_divided dependent on which version of the survey is given to that specific fraternity. The first row of the excel file will include the name of each variable, one variable name per column. Each survey respondent will have his data coded in a row. For the question variables they will be labeled in the following format: Q#_# with the first number being that number of that question on the mixed version and the second number is the number of that specific question on the divided version (i.e. Q1_12 is question 1 on the mixed version and 12 on the divided). This variable naming will be used in SAS in order to set each excel file with each other.

**** Missing values will be coded as a -99**

Version 1: Mixed Survey

VARIABLE NAME	VARIABLE TYPE	VALUES	DESCRIPTION
ID	CATEGORICAL	RANGES FROM 1 to 16	Each Fraternity has its own ID number
Version	CATEGORICAL	VALUES 1 or 2	For the mixed file all will be = 1
Surveyor	CATEGORICAL	RANGES FROM 1 to 4	Who went to that fraternity for the survey 1 = Cierra 2 = Steven 3 = Both
Size	CATEGORICAL	RANGES FROM 1 to 3	Distinguish the size by amount of members in the fraternity 1 = Small (Less than 50) 2 = Medium (50 to 75) 3 = Large (More than 75)
Q1_12	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q2_13	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q3_21	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain3	OPEN ENDED		
Q4_20	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q5_19	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q6_22	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q7_18	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q8_14	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q9_23	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q10_17	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q11_24	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q12_16	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q13_25	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q14_15	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q15_1	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain15	OPEN ENDED		
Q16_26	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q17_10	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False

Q18_9	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q19_8	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q20_27	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q21_3	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q22_2	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q23_7	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q24_5	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q25_4	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q26_6	CATEGORICAL	VALUES 1 to 2	1 = True 2 = False
Q27_28	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q28_29	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain28	OPEN ENDED		
Q29_30	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q30_31	CATEGORICAL	RANGES FROM 1 to 5	1 = Not Likely/Never 2 3 4 5 = Most Likely
Q31_11	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Year	CATEGORICAL	RANGES FROM 1 to 5	1 = Freshman 2 = Sophomore 3 = Junior 4 = Senior 5 = other
Position	CATEGORICAL	RANGES FROM 1 to 4	1 = Executive Officer 2 = General Officer 3 = None 4 = Prefer not to answer
Living	CATEGORICAL	RANGES FROM 1 to 5	1 = Fraternity House 2 = Dorms/On-Campus 3 = With Parents 4 = Apartment/House Off-Campus 5 = Other
Sisters	QUANTITATIVE	RANGES FROM 0 to -	
Brothers	QUANTITATIVE	RANGES FROM 0 to -	

Version 2: Divided

VARIABLE NAME	VARIABLE TYPE	VALUES	DESCRIPTION
ID	CATEGORICAL	RANGES FROM 1 to 16	Each Fraternity has its own ID number
Version	CATEGORICAL	VALUES 1 or 2	For the divided file all will be = 2
Surveyor	CATEGORICAL	RANGES FROM 1 to 4	Who went to that fraternity for the survey 1 = Cierra 2 = Steven 3 = Both
Size	CATEGORICAL	RANGES FROM 1 to 3	Distinguish the size by amount of members in the fraternity 1 = Small (Less than 50) 2 = Medium (50 to 75) 3 = Large (More than 75)
Q15_1	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain1	OPEN ENDED		
Q22_2	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q21_3	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q25_4	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q24_5	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q26_6	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q23_7	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q19_8	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q18_9	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q17_10	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q31_11	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q1_12	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q2_13	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q8_14	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q14_15	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q12_16	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q10_17	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False

Q7_18	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q5_19	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q4_20	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q3_21	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain21	OPEN ENDED		
Q6_22	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q9_23	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q11_24	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q13_25	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q16_26	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q20_27	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q27_28	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q28_29	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Explain29	OPEN ENDED		
Q29_30	CATEGORICAL	VALUES 1 or 2	1 = True 2 = False
Q30_31	CATEGORICAL	RANGES FROM 1 to 5	1 = Not Likely/Never 2 3 4 5 = Most Likely
Year	CATEGORICAL	RANGES FROM 1 to 5	1 = Freshman 2 = Sophomore 3 = Junior 4 = Senior 5 = other
Position	CATEGORICAL	RANGES FROM 1 to 4	1 = Executive Officer 2 = General Officer 3 = None 4 = Prefer not to answer
Living	CATEGORICAL	RANGES FROM 1 to 5	1 = Fraternity House 2 = Dorms/On-Campus 3 = With Parents 4 = Apartment/House Off-Campus 5 = Other
Sisters	QUANTITATIVE	RANGES FROM 0 to -	
Brothers	QUANTITATIVE	RANGES FROM 0 to -	

Mixed Version (1):

Student Questionnaire

Please answer the following True/False questions based on your own thoughts, beliefs, and feelings. By Filling out this survey, you are agreeing to the use of this information in our senior project. All responses will remain anonymous.

1. It doesn't really bother me when women tease me about my faults **T F**
2. There are a number of women who seem to dislike me very much **T F**
3. A woman who goes to the home or apartment of a man on their first date implies that she is willing to have sex **T F**

Please explain your answer below:

4. I don't typically get really angry when a woman makes fun of me. **T F**
5. If I let women see the way I feel, they would probably consider me a hard person to get along with **T F**
6. A woman who is stuck-up and thinks she is too good to talk to guys on the street deserves to be taught a lesson **T F**
7. I do not think that most women would lie to get ahead **T F**
8. I often feel that women probably think I have not lived the right kind of life **T F**
9. One reason that women falsely report a rape is that they frequently have a need to call attention to themselves **T F**
10. Many times a woman appears to care but just wants to use you **T F**
11. In the majority of rapes, the victim is promiscuous or has a bad reputation **T F**
12. I never have the feeling that women laugh about me **T F**
13. If a woman gets drunk at a party and has intercourse with a man she's just met there, she should be considered "fair game" to other males at the party who want to have sex with her too, whether she wants to or not **T F**
14. When I look back at what's happened to me, I don't feel at all resentful toward the women in my life **T F**
15. I often find public displays of affection annoying **T F**

Please explain your answer below:

16. Regardless of appearance or behavior, any female can be raped **T F**
17. Sometimes the words of a love song can move me deeply **T F**
18. The people around me have a great influence on my moods **T F**
19. I like to watch people open presents **T F**
20. If a girl engages in necking or petting and she lets things get out of hand, she is responsible if her partner forces sex on her **T F**

21. Lonely people are probably unfriendly **T F**
22. I get very angry when I see someone being ill-treated **T F**
23. When a friend starts to talk about his/her problems, I try to steer the conversation to something else **T F**
24. It is hard for me to see how some things upset people so much **T F**
25. I cannot continue to feel okay if people around me are depressed **T F**
26. I am unable to make decisions without being influenced by people's feelings **T F**
27. Any healthy woman can successfully resist a rapist if she really wants to **T F**
28. When women go around braless or wearing short skirts and tight tops, they are just asking for trouble **T F**
    Please explain your answer below:

29. Women who get raped while hitchhiking get what they deserve **T F**
30. If you could be assured of not being caught, how likely are you to commit rape?

Less Likely 1 2 3 4 5 Most Likely

31. I do very few things to women that make me feel remorseful afterward **T F**
32. What year are you at Cal Poly?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
33. Do you hold a position in office in your Fraternity? If so, which one?
    a. Executive Officer
    b. General Officer
    c. None
    d. Prefer to not answer
34. Where do you currently live?
    a. In a fraternity house
    b. In the dorms/on campus
    c. With parents
    d. Apartment/house off campus
    e. other
35. Do you have siblings? If so, how many brothers and how many sisters?
    a. _____ Sisters
    b. _____ Brothers
    c. None

Divided Version (2):

Student Questionnaire

Please answer the following True/False questions based on your own thoughts, beliefs, and feelings. By Filling out this survey, you are agreeing to the use of this information in our senior project. All responses will remain anonymous.

1. I often find public displays of affection annoying **T F**
   Please explain your answer below:

2. I get very angry when I see someone being ill-treated **T F**
3. Lonely people are probably unfriendly **T F**
4. I cannot continue to feel okay if people around me are depressed **T F**
5. It is hard for me to see how some things upset people so much **T F**
6. I am unable to make decisions without being influenced by people's feelings **T F**
7. When a friend starts to talk about his/her problems, I try to steer the conversation to something else **T F**
8. I like to watch people open presents **T F**
9. The people around me have a great influence on my moods **T F**
10. Sometimes the words of a love song can move me deeply **T F**
11. I do very few things to women that make me feel remorseful afterward **T F**
12. It doesn't affect me when women tease me about my faults **T F**
13. There are a number of women who seem to dislike me very much **T F**
14. I often feel that women probably think I have not lived the right kind of life **T F**
15. When I look back at what's happened to me, I don't feel at all resentful toward the women in my life **T F**
16. I never have the feeling that women laugh about me **T F**
17. Many times a woman appears to care but just wants to use you **T F**
18. I do not think that most women would lie to get ahead **T F**
19. If I let women see the way I feel, they would probably consider me a hard person to get along with **T F**
20. I don't typically get really angry when a woman makes fun of me. **T F**
21. A woman who goes to the home or apartment of a man on their first date implies that she is willing to have sex **T F**
    Please explain your answer below:

22. A woman who is stuck-up and thinks she is too good to talk to guys on the street deserves to be taught a lesson **T F**
23. One reason that women falsely report a rape is that they frequently have a need to call attention to themselves **T F**

24. In the majority of rapes, the victim is promiscuous or has a bad reputation **T F**
25. If a woman gets drunk at a party and has intercourse with a man she's just met there, she should be considered "fair game" to other males at the party who want to have sex with her too, whether she wants to or not **T F**
26. Regardless of appearance or behavior, any female can be raped **T F**
27. If a girl engages in necking or petting and she lets things get out of hand, she is responsible if her partner forces sex on her **T F**
28. Any healthy woman can successfully resist a rapist if she really wants to **T F**
29. When women go around braless or wearing short skirts and tight tops, they are just asking for trouble **T F**
    Please explain your answer below:

30. Women who get raped while hitchhiking get what they deserve **T F**
31. If you could be assured of not being caught, how likely are you to commit rape?

Less Likely 1 2 3 4 5 Most Likely

32. What year are you at Cal Poly?
    a. Freshman
    b. Sophomore
    c. Junior
    d. Senior
33. Do you hold a position in office in your Fraternity? If so, which one?
    a. Executive Officer b. General Officer
    c. None d. Prefer not to answer
34. Where do you currently live?
    a. In a fraternity house b. In the dorms/on campus
    c. With parents d. Apartment/house off campus
    f. other
35. Do you have siblings? If so, how many brothers and how many sisters?
    a. _____ Sisters
    b. _____ Brothers c. None

Frequencies of all Questions and Variables:

Size	Frequency	Percent
1	211	43.24
2	111	22.75
3	166	34.02

Q1_12	Frequency	Percent
True	286	58.97
False	199	41.03

Frequency Missing = 3

Q2_13	Frequency	Percent
True	54	11.09
False	433	88.91

Frequency Missing = 1

Q3_21	Frequency	Percent
True	124	25.89
False	355	74.11

Frequency Missing = 9

Q4_20	Frequency	Percent
True	403	84.13
False	76	15.87

Frequency Missing = 9

Q5_19	Frequency	Percent
True	56	11.52
False	430	88.48

Frequency Missing = 2

Q6_22	Frequency	Percent
True	106	21.90
False	378	78.10

Frequency Missing = 4

Q7_18	Frequency	Percent
True	179	37.06
False	304	62.94

Frequency Missing = 5

Q8_14	Frequency	Percent
True	70	14.40
False	416	85.60

Frequency Missing = 2

Q9_23	Frequency	Percent
True	141	29.44
False	338	70.56

Frequency Missing = 9

Q10_17	Frequency	Percent
True	183	37.81
False	301	62.19

Frequency Missing = 4

Q11_24	Frequency	Percent
True	44	9.36
False	426	90.64

Frequency Missing = 18

Q12_16	Frequency	Percent
True	209	43.27
False	274	56.73

Frequency Missing = 5

Q13_25	Frequency	Percent
True	29	6.07
False	449	93.93

Frequency Missing = 10

Q14_15	Frequency	Percent
True	340	70.25
False	144	29.75

Frequency Missing = 4

Q15_1	Frequency	Percent
True	223	46.65
False	255	53.35

Frequency Missing = 10

Q16_26	Frequency	Percent
True	399	84.18
False	75	15.82

Frequency Missing = 14

Q17_10	Frequency	Percent
True	312	64.60
False	171	35.40

Frequency Missing = 5

Q18_9	Frequency	Percent
True	399	82.44
False	85	17.56

Frequency Missing = 4

Q19_8	Frequency	Percent
True	403	83.26
False	81	16.74

Frequency Missing = 4

Q20_27	Frequency	Percent
True	30	6.26
False	449	93.74

Frequency Missing = 9

Q21_3	Frequency	Percent
True	61	12.55
False	425	87.45

Frequency Missing = 2

Q22_2	Frequency	Percent
True	436	90.27
False	47	9.73

Frequency Missing = 5

Q23_7	Frequency	Percent
True	82	16.98
False	401	83.02

Frequency Missing = 5

Q24_5	Frequency	Percent
True	251	51.86
False	233	48.14

Frequency Missing = 4

Q25_4	Frequency	Percent
True	265	54.87
False	218	45.13

Frequency Missing = 5

Q26_6	Frequency	Percent
True	115	23.96
False	365	76.04

Frequency Missing = 8

Q27_28	Frequency	Percent
True	48	10.08
False	428	89.92

Frequency Missing = 12

Q28_29	Frequency	Percent
True	112	23.93
False	356	76.07

Frequency Missing = 20

Q29_30	Frequency	Percent
True	18	3.83
False	451	95.96
3	1	0.21

Frequency Missing = 18

Q30_31	Frequency	Percent
1	437	93.78
2	13	2.79
3	12	2.58
4	3	0.64
11	1	0.21

Frequency Missing = 22

Q31_11	Frequency	Percent
True	395	84.04
False	75	15.96

Frequency Missing = 1

Year	Frequency	Percent
Freshman	5	1.05
Sophomore	175	36.76
Junior	123	25.84
Senior	166	34.87
Other	7	1.47

Frequency Missing = 12

Position	Frequency	Percent
Executive	89	18.78
General	118	24.89
None	233	49.16
Decline	33	6.96
Other	1	0.21

Frequency Missing = 14

Live	Frequency	Percent
Fraternity House	100	20.96
On Campus	35	7.34
With Parents	6	1.26
Off Campus	332	69.60
Other	4	0.84

Frequency Missing = 11

Sisters	Frequency	Percent
0	177	37.26
1	213	44.84
2	65	13.68
3	14	2.95
4	5	1.05
10	1	0.21

Frequency Missing = 13

Brothers	Frequency	Percent
0	219	46.20
1	175	36.92
2	64	13.50
3	11	2.32
4	2	0.42
5	1	0.21
6	2	0.42

Frequency Missing = 14

SAS Model Output:

The GLM Procedure

Dependent Variable: Empathy

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	16	46.341923	2.896370	1.12	0.3299
Error	457	1178.290989	2.578317		
Corrected Total	473	1224.632911			

R-Square	Coeff Var	Root MSE	Empathy Mean
0.037841	24.11624	1.605714	6.658228

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Surveyor	2	4.70725264	2.35362632	0.91	0.4021
Version	1	0.26427814	0.26427814	0.10	0.7490
Surveyor*Version	2	1.30084941	0.65042471	0.25	0.7771
ID(Surveyor*Version)	7	25.60580855	3.65797265	1.42	0.1956
sisters	1	12.50338924	12.50338924	4.85	0.0282
Live	1	0.51099572	0.51099572	0.20	0.6564
age	2	1.44934913	0.72467456	0.28	0.7551

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Surveyor	2	2.44308679	1.22154339	0.47	0.6230
Version	1	0.39163304	0.39163304	0.15	0.6969
Surveyor*Version	2	0.80440107	0.40220054	0.16	0.8556
ID(Surveyor*Version)	7	28.11226229	4.01603747	1.56	0.1460
sisters	1	12.55250056	12.55250056	4.87	0.0278
Live	1	0.40465054	0.40465054	0.16	0.6922
age	2	1.44934913	0.72467456	0.28	0.7551

Empathy by only the sister variable

The GLM Procedure

Dependent Variable: Empathy

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	9.810659	9.810659	3.81	0.0514
Error	473	1216.618815	2.572133		
Corrected Total	474	1226.429474			

R-Square	Coeff Var	Root MSE	Empathy Mean
0.007999	24.07708	1.603787	6.661053

Source	DF	Type I SS	Mean Square	F Value	Pr > F
sisters	1	9.81065899	9.81065899	3.81	0.0514

Source	DF	Type III SS	Mean Square	F Value	Pr > F
sisters	1	9.81065899	9.81065899	3.81	0.0514

Dependent Variable: Hostility

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	16	51.698345	3.231147	1.03	0.4186
Error	457	1427.983089	3.124689		
Corrected Total	473	1479.681435			

R-Square	Coeff Var	Root MSE	Hostility Mean
0.034939	59.97709	1.767679	2.947257

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Surveyor	2	2.04202752	1.02101376	0.33	0.7214
Version	1	6.76729548	6.76729548	2.17	0.1418
Surveyor*Version	2	11.55793113	5.77896556	1.85	0.1585
ID(Surveyor*Version)	7	22.86906968	3.26700995	1.05	0.3983
sisters	1	0.05679865	0.05679865	0.02	0.8928
Live	1	0.33467678	0.33467678	0.11	0.7436
age	2	8.07054613	4.03527306	1.29	0.2759

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Surveyor	2	3.30059827	1.65029914	0.53	0.5901
Version	1	7.88692563	7.88692563	2.52	0.1128
Surveyor*Version	2	9.87354191	4.93677096	1.58	0.2071
ID(Surveyor*Version)	7	21.87643162	3.12520452	1.00	0.4303
sisters	1	0.02930744	0.02930744	0.01	0.9229
Live	1	0.52052677	0.52052677	0.17	0.6834
age	2	8.07054613	4.03527306	1.29	0.2759

Dependent Variable: Aggression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	16	84.393784	5.274612	2.46	0.0014
Error	457	980.739127	2.146037		
Corrected Total	473	1065.132911			

R-Square	Coeff Var	Root MSE	Aggression Mean
0.079233	67.87680	1.464936	2.158228

Source	DF	Type I SS	Mean Square	F Value	Pr > F
Surveyor	2	2.18371679	1.09185840	0.51	0.6016
Version	1	1.91056086	1.91056086	0.89	0.3459
Surveyor*Version	2	7.31325210	3.65662605	1.70	0.1831
ID(Surveyor*Version)	7	66.53673062	9.50524723	4.43	<.0001
sisters	1	4.58743309	4.58743309	2.14	0.1444
Live	1	0.21491603	0.21491603	0.10	0.7518
age	2	1.64717467	0.82358734	0.38	0.6815

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Surveyor	2	0.72652368	0.36326184	0.17	0.8443
Version	1	2.17901969	2.17901969	1.02	0.3142
Surveyor*Version	2	10.61486652	5.30743326	2.47	0.0854
ID(Surveyor*Version)	7	65.06441677	9.29491668	4.33	0.0001
sisters	1	4.57932994	4.57932994	2.13	0.1448
Live	1	0.14439833	0.14439833	0.07	0.7954
age	2	1.64717467	0.82358734	0.38	0.6815

Tukey-Kramer Comparison Lines for Least Squares Means of ID(Surveyor*Version)

LS-means with the same letter are not significantly different.

		Aggression LSMEAN	ID	Surveyor	Version	LSMEAN Number
	A	3.3845297	**7**	**1**	**1**	2
	A					
B	A	2.7530427	**14**	**1**	**1**	5
B	A					
B	A	2.6315654	**9**	**2**	**2**	10
B	A					
B	A	2.4161611	**6**	**1**	**1**	1
B	A					
B	A	2.2182165	**11**	**3**	**2**	13
B	A					
B	A	2.1710403	**2**	**2**	**1**	8
B	A					
B	A	2.0846122	**3**	**2**	**2**	9
B						
B		2.0051567	**4**	**1**	**2**	6
B						
B		1.9574196	**8**	**3**	**1**	12
B						
B		1.8320310	**12**	**2**	**2**	11
B						
B		1.6664187	**13**	**1**	**1**	4
B						
B		1.6614976	**10**	**1**	**1**	3
B						
B		1.5752131	**15**	**1**	**2**	7

Likelihood Logistic Model:

The LOGISTIC Procedure

Model Information	
Data Set	WORK.LOGISTIC
Response Variable	likert
Number of Response Levels	2
Model	binary logit
Optimization Technique	Fisher's scoring

Number of Observations Read	488
Number of Observations Used	465

Response Profile

Ordered Value	likert	Total Frequency
1	likely	28
2	not likely	437

Probability modeled is likert='likely'.

Note: 23 observations were deleted due to missing values for the response or explanatory variables.

Class Level Information

Class	Value	Design Variables	
Surveyor	**1**	0	0
	2	1	0
	3	0	1

Model Convergence Status

Quasi-complete separation of data points detected.

Warning: The maximum likelihood estimate may not exist.

Warning: The LOGISTIC procedure continues in spite of the above warning. Results shown are based on the last maximum likelihood iteration. Validity of the model fit is questionable.

Model Fit Statistics

Criterion	Intercept Only	Intercept and Covariates
AIC	213.630	200.211
SC	217.772	225.063
-2 Log L	211.630	188.211

Testing Global Null Hypothesis: BETA=0

Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	23.4188	5	0.0003
Score	28.2317	5	<.0001
Wald	19.3477	5	0.0017

Type 3 Analysis of Effects

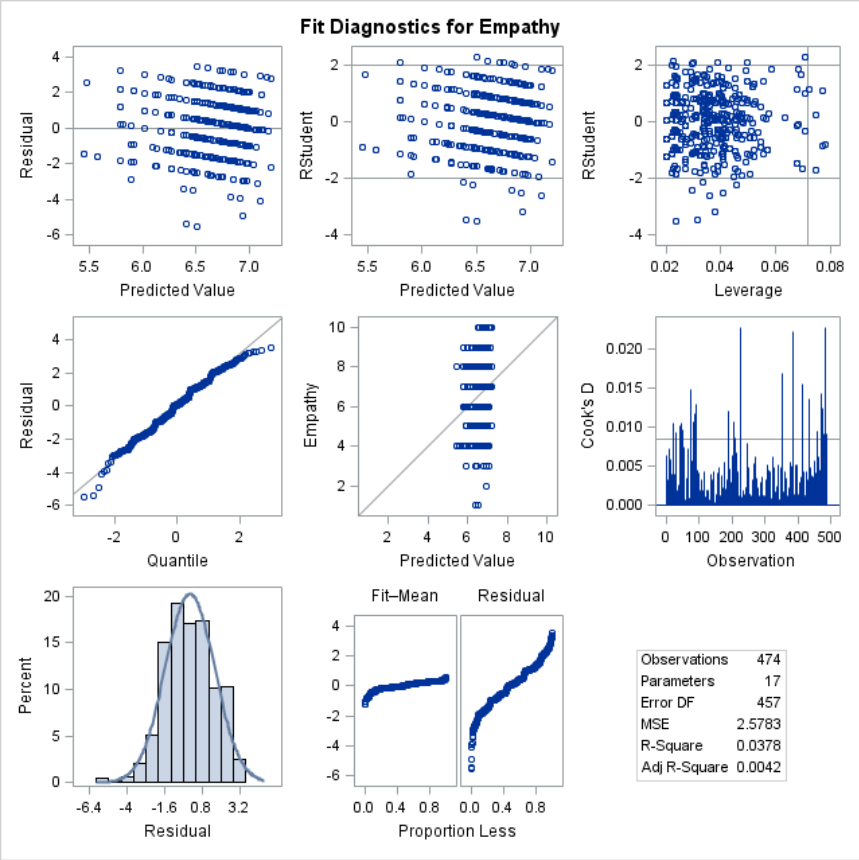
Effect	DF	Wald Chi-Square	Pr > ChiSq
Surveyor	2	1.1542	0.5615
ID(Surveyor)	3	7.4496	0.0589

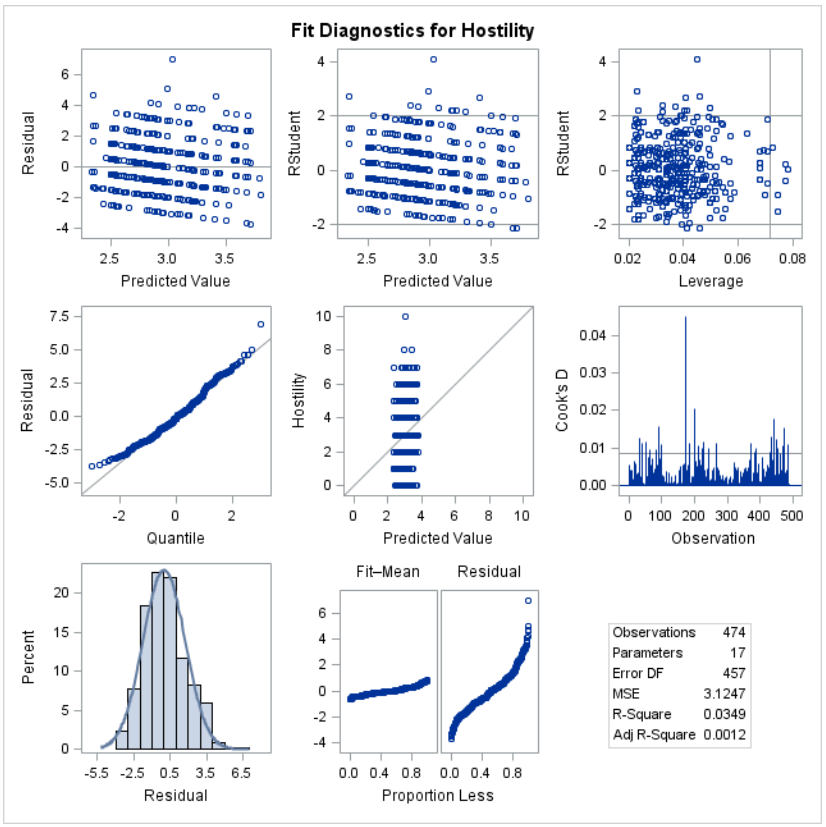
Analysis of Maximum Likelihood Estimates

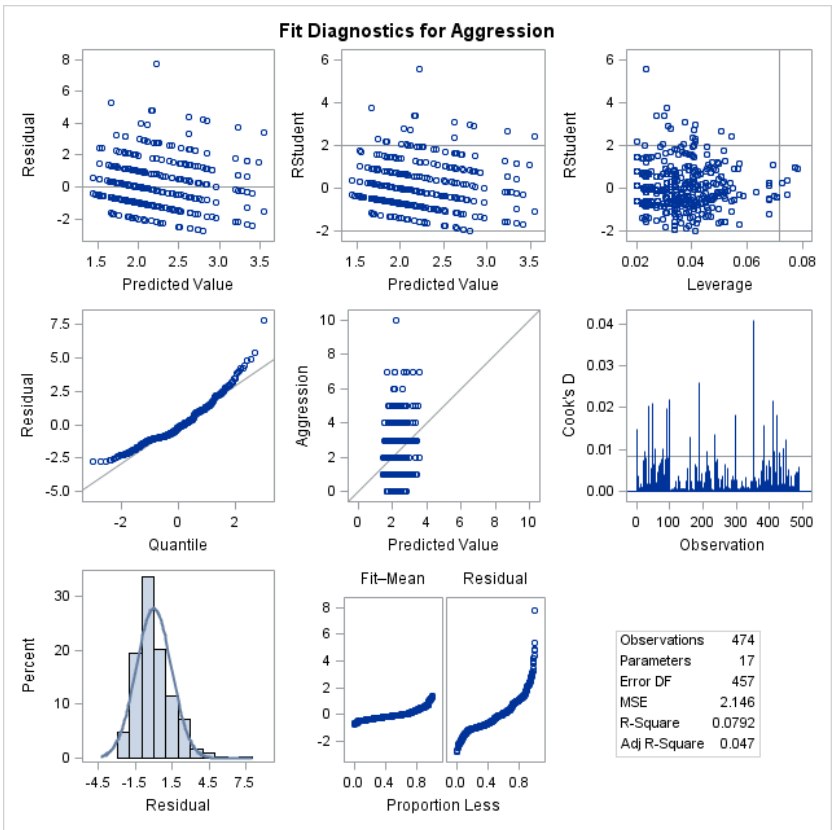
Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		1	-4.4554	1.1431	15.1914	<.0001
Surveyor	**2**	1	1.3471	1.2629	1.1377	0.2861
Surveyor	**3**	1	25.7301	191.8	0.0180	0.8933
ID(Surveyor)	**1**	1	0.0920	0.1035	0.7909	0.3738
ID(Surveyor)	**2**	1	0.1619	0.0628	6.6430	0.0100
ID(Surveyor)	**3**	1	-3.0110	23.9683	0.0158	0.9000

Graphs:

Residual Plots of the 3 Index models:

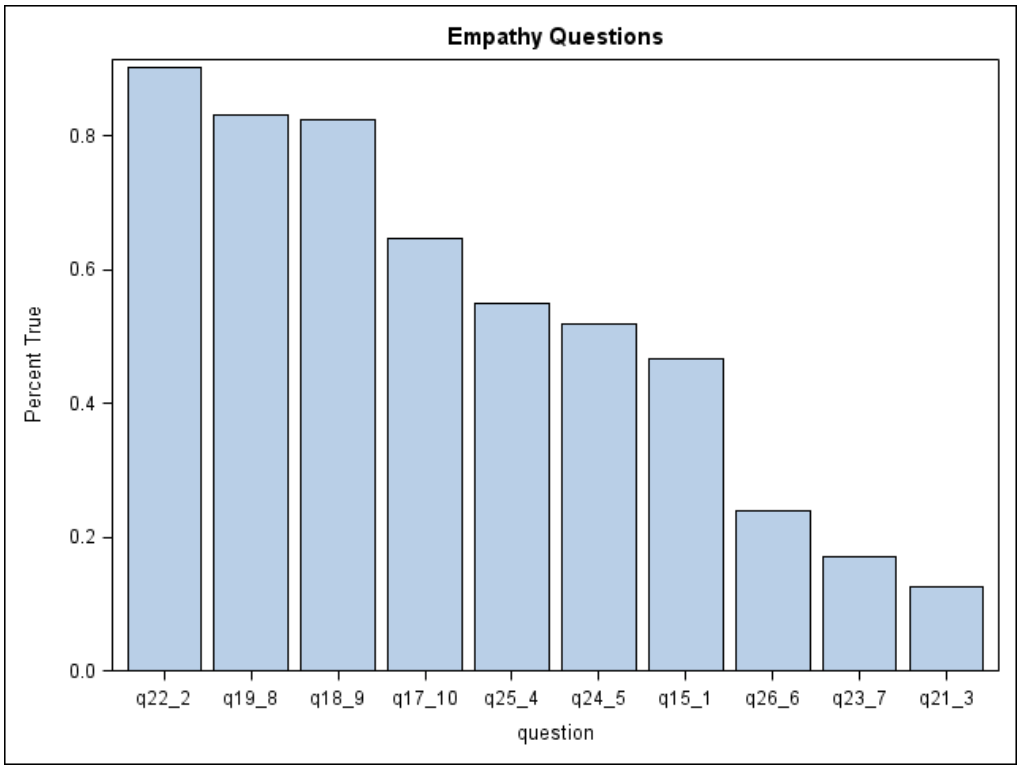


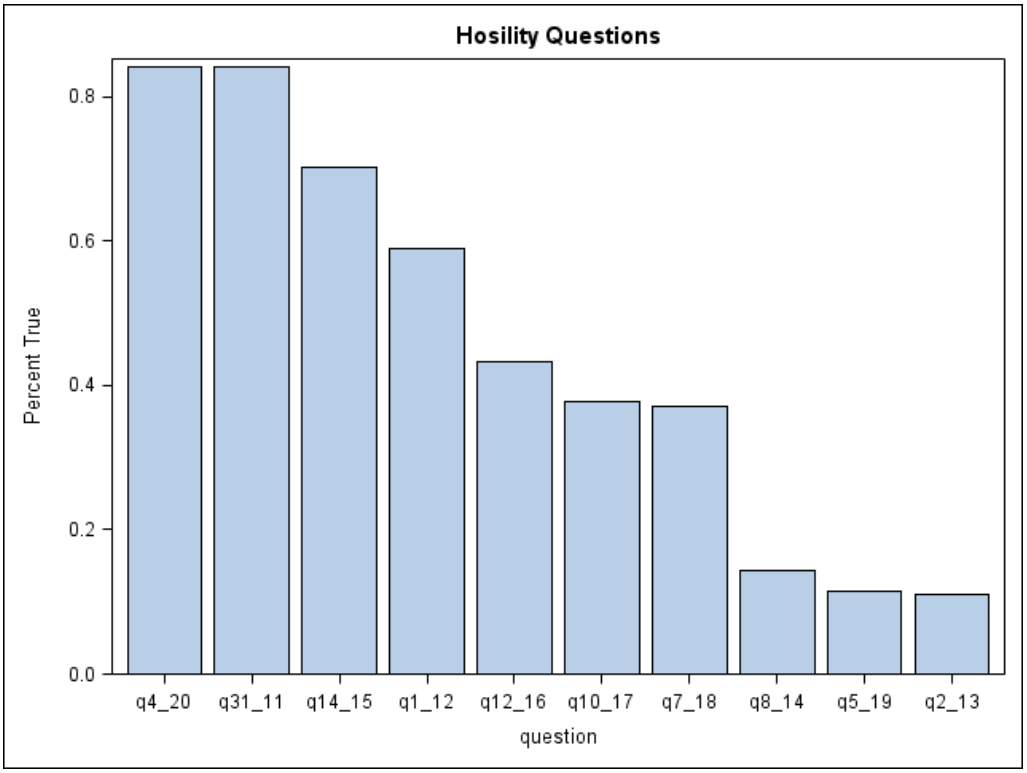

Fit Diagnostics for Hostility
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
Hostility
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 474
Parameters 17
Error DF 457
MSE 3.1247
R-Square 0.0349
Adj R-Square 0.0012

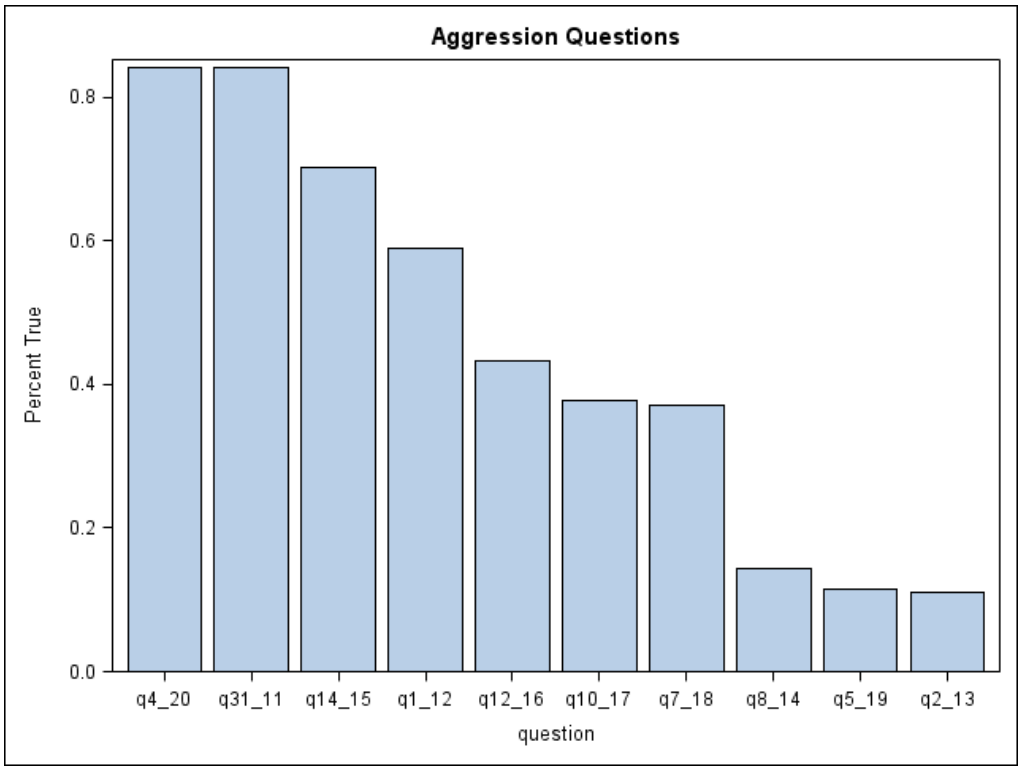

Fit Diagnostics for Aggression
Residual
Predicted Value
RStudent
Predicted Value
RStudent
Leverage
Residual
Quantile
Aggression
Predicted Value
Cook's D
Observation
Percent
Residual
Fit–Mean
Residual
Proportion Less
Observations 474
Parameters 17
Error DF 457
MSE 2.146
R-Square 0.0792
Adj R-Square 0.047

Percent of True answers for each of the questions separated by Index:

(Sorted in descending order)






Aggression Questions
Percent True
0.0
0.2
0.4
0.6
0.8
q4_20
q31_11
q14_15
q1_12
q12_16
q10_17
q7_18
q8_14
q5_19
q2_13
question

SAS Code:

```
/***********************************/
/*      SAS Code For Appendix      */
/*      Senior Project - 2013      */
/*      Steven LeGore              */
/***********************************/



/* Reading the data in */

libname SASLoc 'E:\Senior Project\SAS';
%let path = E:\Senior Project\csv files\;

/* Divided */

%let id = /* any divided id */;

data SASLoc.divided_&id;
      infile "&path.FraternitySP_Divided&id..csv" firstobs=2 dlm=',' dsd;
      input ID Version Surveyor Email Size Q15_1 Ex15_1 :$30. Q22_2 Q21_3
Q25_4 Q24_5 Q26_6 Q23_7 Q19_8
              Q18_9 Q17_10 Q31_11 Q1_12 Q2_13 Q8_14 Q14_15 Q12_16 Q10_17
Q7_18 Q5_19 Q4_20 Q3_21
              Ex3_21 :$30. Q6_22 Q9_23 Q11_24 Q13_25 Q16_26 Q20_27 Q27_28
Q28_29 Ex28_29 :$30. Q29_30 Q30_31
              Year Position Live Sisters Brothers;
      drop email;
run;


/* Mixed */

%let id = /* any mixed id */ ;

data SASLoc.mixed_&id;
      infile "&path.FraternitySP_Mixed&id..csv" firstobs=2 dlm=',' dsd;
      input ID Version Surveyor Email Size Q1_12 Q2_13 Q3_21 Ex3_21 :$45.
Q4_20 Q5_19 Q6_22 Q7_18 Q8_14
            Q9_23 Q10_17 Q11_24 Q12_16 Q13_25 Q14_15 Q15_1 Ex15_1 :$45.
Q16_26 Q17_10 Q18_9 Q19_8 Q20_27
          Q21_3 Q22_2 Q23_7 Q24_5 Q25_4 Q26_6 Q27_28 Q28_29 Ex28_29 :$45.
Q29_30 Q30_31 Q31_11
              Year Position Live Sisters Brothers;
      drop email;
run;
```

```
/* Complete data set */
/* Setting all data sets into one */

data SASLoc.FinalDataSet;
      set mixed_2 mixed_6 mixed_7 mixed_8 mixed_10 mixed_13 mixed_14
          divided_3 divided_4 divided_9 divided_11 divided_12 divided_15;
            array allnum _NUMERIC_;
            do over allnum;
                  if allnum in(99, -99) then allnum = .;
            end;
run;


/**************/
/*  Formats   */
/**************/

proc format;
      value TF 1   = 'True'
               2   = 'False';
      value schoolyr 1 = 'Freshman'
                     2 = 'Sophomore'
                     3 = 'Junior'
                     4 = 'Senior'
                     5 = 'Other';
      value position 1 = 'Executive'
               2 = 'General'
                     3 = 'None'
                     4 = 'Decline'
                       5 = 'Other';
      value live   1 = 'Fraternity House'
                     2 = 'On Campus'
                     3 = 'With Parents'
                     4 = 'Off Campus'
                     5 = 'Other';
run;


/* proc freqs of the all the variables */
/* get an idea of what the data looks like */
title;
footnote;
options nodate pageno=1;
proc freq data = sasloc.FinalDataSet;
      table  Size Q1_12 Q2_13 Q3_21 Q4_20 Q5_19 Q6_22 Q7_18 Q8_14 Q9_23
Q10_17 Q11_24
            Q12_16 Q13_25 Q14_15 Q15_1 Q16_26 Q17_10 Q18_9 Q19_8 Q20_27
          Q21_3 Q22_2 Q23_7 Q24_5 Q25_4 Q26_6 Q27_28 Q28_29 Q29_30 Q30_31
Q31_11
            Year Position Live Sisters Brothers / nocum;
      format Q1_12 Q2_13 Q3_21 Q4_20 Q5_19 Q6_22 Q7_18 Q8_14 Q9_23 Q10_17
Q11_24
            Q12_16 Q13_25 Q14_15 Q15_1 Q16_26 Q17_10 Q18_9 Q19_8 Q20_27
          Q21_3 Q22_2 Q23_7 Q24_5 Q25_4 Q26_6 Q27_28 Q28_29 Q29_30 Q31_11
            TF. year schoolyr. Live live. position position.;
run;
```

```
* empathy index
* hostility
* aggression
* likert;

/* creating dichotomous variables for analysis */

data Fraternity;
      set sasloc.finaldataset;
      if q30_31 = 11 then q30_31 = .; * wrong entry of value = 11;
      if sisters > 0 then sis_binary = 1;
      else if sisters = 0 then sis_binary = 0;
      if live = 1 then frat_house = 1;
      else if live in(2,3,4,5) then frat_house = 0;
      if year in(1,2) then age = 1;
      else if year = 3 then age = 2;
      else if year in(4,5) then age = 3;
      if Q30_31 = 1 then likert = 0;
      else if q30_31 in(2,3,4,5) then likert = 1;
      drop brothers sisters live year position Ex3_21 ex15_1 ex28_29;
run;


/* Code used to create the index variables */

data sasloc.WithIndices;
      set fraternity;
      Empathy = 0;
            if Q15_1  = 2 then empathy = empathy +1;
            if Q22_2  = 1 then empathy = empathy +1;
            if Q21_3  = 2 then empathy = empathy +1;
            if Q25_4  = 1 then empathy = empathy +1;
            if Q24_5  = 2 then empathy = empathy +1;
            if Q26_6  = 1 then empathy = empathy +1;
            if Q23_7  = 2 then empathy = empathy +1;
            if Q19_8  = 1 then empathy = empathy +1;
            if Q18_9  = 1 then empathy = empathy +1;
            if Q17_10 = 1 then empathy = empathy +1;
      Hostility = 0;
            if q31_11 = 2 then hostility = hostility+1;
            if q1_12  = 2 then hostility = hostility+1;
            if q2_13  = 1 then hostility = hostility+1;
            if q8_14  = 1 then hostility = hostility+1;
            if q14_15 = 2 then hostility = hostility+1;
            if q12_16 = 2 then hostility = hostility+1;
            if q10_17 = 1 then hostility = hostility+1;
            if q7_18  = 2 then hostility = hostility+1;
            if q5_19  = 1 then hostility = hostility+1;
            if q4_20  = 2 then hostility = hostility+1;
      Aggression = 0;
            if q3_21  = 1 then aggression = aggression+1;
            if q6_22  = 1 then aggression = aggression+1;
            if q9_23  = 1 then aggression = aggression+1;
            if q11_24 = 1 then aggression = aggression+1;
            if q13_25 = 1 then aggression = aggression+1;
            if q16_26 = 1 then aggression = aggression+1;
            if q20_27 = 1 then aggression = aggression+1;
```

```
            if q27_28 = 1 then aggression = aggression+1;
            if q28_29 = 1 then aggression = aggression+1;
            if q29_30 = 1 then aggression = aggression+1;
run;


options nodate center pageno=1;

/* freqs of the different indices */

proc freq data = withindices;
      table empathy hostility aggression likert;
run;

/* bar charts of each of the indices */

proc sgplot data = sasloc.withindices;
      vbar empathy;
      title 'Bar chart of the Empathy Index';
      footnote 'Higher score means more empathy';
run;
proc sgplot data =sasloc.withindices;
      vbar hostility;
      title 'Bar chart of the Hostility Index';
      footnote 'Higher score means more hostility towards women';
run;
proc sgplot data = sasloc.withindices;
      vbar aggression;
      title 'Bar chart of the Aggression Index';
      footnote 'Higher score means more aggression towards women';
run;
proc sgplot data = sasloc.withindices;
      vbar likert/ stat=freq datalabel;
      title 'Bar Chart of Likelihood to Commit Sexual Assault';
      footnote '0 = Less Likely
                1 = More likely';
      label likert = 'Likelihood of Committing Sexual Assualt';
run;
proc sgplot data = sasloc.withindices;
      vbar q30_31/ stat=freq datalabel;
      title 'Responses to Likelihood of Committing Sexual Assault';
      label q30_31 = 'Responses';
      footnote '1 Represents Less likely/No chance';
run;

/* distribution of the version */

proc freq data = sasloc.withindices;
      table version version*surveyor;
run;
```

```
/* looking at distributions of surveyor based on the likert value */
/* to look at since surveyor was significant in initial logistic model for
likert */

proc freq data = withindices;
      where likert = 0;
      table likert*surveyor*id surveyor;
run;

proc freq data = withindices;
      where likert = 1;
      table likert*surveyor*id surveyor;
run;


/* looking at summary statistics by likert value */

proc means data = withindices maxdec=2;
      where likert = 0;
      var empathy hostility aggression;
run;

proc means data = withindices maxdec=2;
      where likert = 1;
      var empathy hostility aggression;
run;


/* the analysis data set which only includes variables of interest for the
analyses */
/* dropped all the T/F questions, only index and demographic variables in
this set  */

data analysis;
      set sasloc.analysis;
      rename sis_binary = sisters
               frat_house = Live;
run;
```

```
/* GLM Models for Empathy, Hostility, Aggression */
/* with id nested within surveyor                */

/* empathy model */
proc glm data = analysis PLOTS=(DIAGNOSTICS RESIDUALS);
      class id surveyor version sisters live age;
      model empathy = surveyor version surveyor*version id(surveyor version)
sisters live age / tolerance;
run;quit;

/* corr between the variables */
proc corr pearson ;
      var id surveyor version sisters live age;
run;

proc glm data = analysis PLOTS=(DIAGNOSTICS RESIDUALS);
      class sisters;
      model empathy = sisters;
run;quit;


/* hostility model */
proc glm data = analysis PLOTS=(DIAGNOSTICS RESIDUALS);
      class id surveyor version sisters live age;
      model hostility = surveyor version surveyor*version id(surveyor
version) sisters live age;
run;quit;


/* aggresion model */
/* questionable fit/residuals */
proc glm data = analysis PLOTS=(DIAGNOSTICS RESIDUALS);
      class id surveyor version sisters live age;
      model aggression = surveyor version surveyor*version id(surveyor
version) sisters live age;
      lsmeans id(surveyor version) / adjust = tukey lines;
run;quit;


/* look into the ID variable */
proc means data = analysis;
      class id;
      var aggression;
run;
```

```
/* created a separate data set for the logistic model */

/* logistic model for likert */
proc format;
      value like 0 = "not likely"
                 1 = "likely";
run;

/* formatted data set to make logistic output more clear */
data logistic;
      set analysis;
      format likert like.;
run;

/* logistic regression for just surveyor */
/* change reference group and change so the model is modeling prob(likely or
1) instead of 0 */


proc logistic data = logistic;
      class surveyor (param=ref ref='1');
      model likert (event = 'likely') = surveyor ID(surveyor);
run;

proc surveylogistic data = logistic;
      class surveyor (param=ref ref='1') version (param=ref ref='1');
      model likert (event = 'likely') = surveyor id(surveyor version) version
surveyor*version;
run;
```

```
/* percentage data set to create graphics */
/* put in appendix of report              */
data sasloc.TFpercentages;
      input question $ True False index :$10.;
      Perc_true = true / (true + false);
      datalines;
            q1_12 286 199 hostility
            q2_13 54 433 hostility
            q3_21 124 355 aggression
            q4_20 403 76 hostility
            q5_19 56 430 hostility
            q6_22 106 378 aggression
            q7_18 179 304 hostility
            q8_14 70 416 hostility
            q9_23 141 338 aggression
            q10_17 183 301 hostility
            q11_24 44 426 aggression
            q12_16 209 274 hostility
            q13_25 29 449 aggression
            q14_15 340 144 hostility
            q15_1 223 255 empathy
            q16_26 399 75 aggression
            q17_10 312 171 empathy
            q18_9 399 85 empathy
            q19_8 403 81 empathy
            q20_27 30 449 aggression
            q21_3 61 425 empathy
            q22_2 436 47 empathy
            q23_7 82 401 empathy
            q24_5 251 233 empathy
            q25_4 265 218 empathy
            q26_6 115 365 empathy
            q27_28 48 428 aggression
            q28_29 112 356 aggression
            q29_30 18 451 aggression
            q31_11 395 75 hostility
            ;
run;


/* bar charts of %true for t/f questions by index */
/* see which questions were on the extremes       */

proc sgplot data = tfpercentages;
      vbar question / response = perc_true categoryorder = respdesc;
      where index = 'empathy';
      label perc_true = 'Percent True';
      Title "Empathy Questions";
run;

proc sgplot data = tfpercentages;
      vbar question / response = perc_true categoryorder = respdesc;
      where index = 'hostility';
      label perc_true = 'Percent True';
      Title "Hosility Questions";
run;
```

```
proc sgplot data = tfpercentages;
      vbar question / response = perc_true categoryorder = respdesc;
      where index = 'hostility';
      label perc_true = 'Percent True';
      Title "Aggression Questions";
run;

/* means and CI of significant vars from glm */

proc means data = analysis alpha = .05 noprint nway;
      class id;
      var aggression;
      output out = aggression MEAN = mean
                                                  LCLM = LCL
                                                    UCLM = UCL;
run;

proc means data = analysis alpha = .05 noprint nway;
      class sisters;
      var empathy;
      output out = empathy MEAN = mean
                                                LCLM = LCL
                                              UCLM = UCL;
run;

/* comparing data with different margin of error */
/* .03ish difference, not a big diff             */
data empathy2;
      set empathy;
      lcl_SE = mean - (sqrt(12.55250056) / sqrt(_freq_));
      ucl_SE = mean + (sqrt(12.55250056) / sqrt(_freq_));
run;



/*  export final data to excel  */

libname myxls "E:\Senior Project\Excel files\FraternitySP_All.xlsx";


data myxls.fraternitysp_all;
      set sasloc.withindices;
run;
```